13 Visibility

13.1 General Description

13.1.1 Fog

The number of days with fog are quite low across the lower elevations of Montana. Kalispell has the largest number of days with fog because high pressure during the winter allows temperature inversions and fog to develop (Fig. 1). During the summer, fog rarely forms, while the greatest frequency generally occurs in the spring. In Table 13.1, the monthly and annual number of days with reported fog is provided for the state's first order weather stations. Fog occurs quite often at higher elevations when mountains are embedded in clouds. Fog is essentially clouds that touch the ground. With radiational heating after sunrise, fog is known to burn-off. When air is completely saturated at 100 percent relative humidity, fog often forms. If this parcel of moist air is heated by the sun, through warm air advection, compressional heating, or vertical mixing with drier air aloft, the relative humidity drops and the fog dissipates.

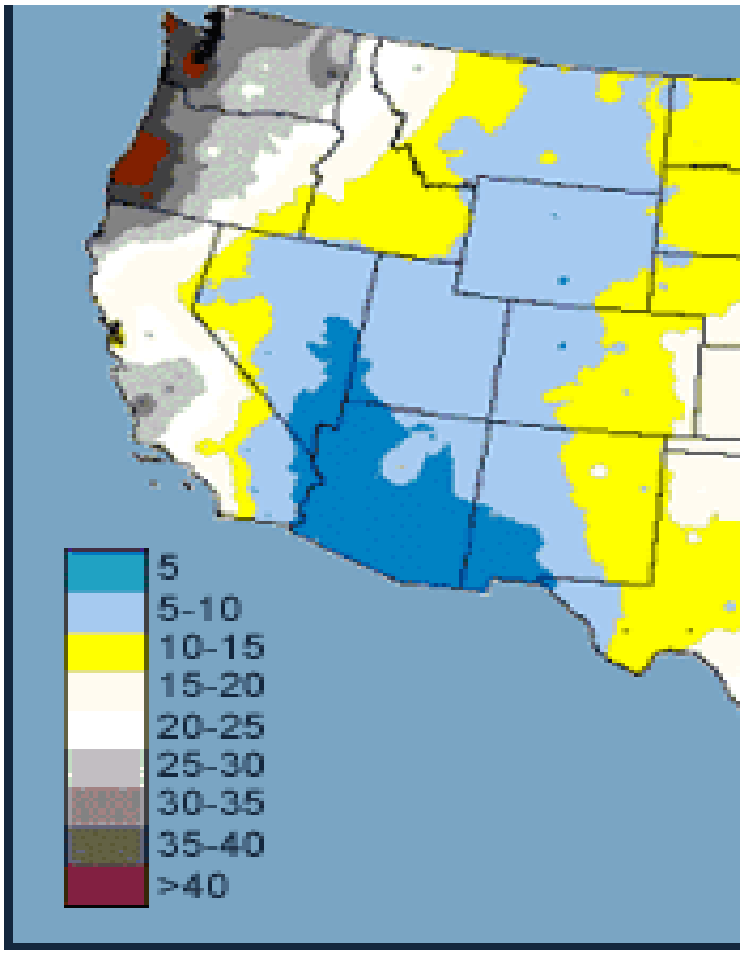

Figure 1. Annual number of days of dense fog (visibility <= ¼ mile).

Table 13.1 Days of dense fog. An asterisk indicates an average of less than one day.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
Billings	2	2	2	2	1	1	*	*	1	1	2	2	17
Bozeman	4	2	3	1	*	*	*	*	*	1	2	2	16
Butte	3	2	2	2	1	1	*	*	*	1	2	3	16
Cut Bank	2	4	3	2	1	1	*	*	1	3	2	2	21
Dillon	1	2	1	2	1	*	0	0	*	1	1	1	10
Glasgow	4	4	2	1	1	*	*	*	1	2	3	3	21
Great Falls	1	2	3	2	1	*	0	0	1	2	2	2	17
Havre	3	3	2	1	1	*	*	*	*	1	2	2	15
Helena	3	1	1	1	1	*	*	*	*	1	1	3	13
Kalispell	7	4	3	1	1	2	1	1	2	4	4	5	35
Lewistown	1	3	3	2	2	*	*	*	1	1	1	2	17
Miles City	2	1	3	2	1	1	*	*	1	*	1	2	15
Missoula	9	5	2	1	1	*	*	*	1	3	5	7	33

There are several other restrictions to visibility, including blowing dust and snow, smoke, and other phenomena. Volcanic ash from Mt St Helens severely restricted visibility in May 1980 during its eruption.